

Chapter I.**Description.****Aspect.****Upland Kánara.**

thousand feet higher, show the vegetation of a temperate climate, the raspberry and salop and the wild rose and violet. In this belt of hills there is almost no tillage; the only inhabitants are a few wild forest tribes.

To the east of the Sahyádris crest stretches a wooded upland from 1500 to 2000 feet above the sea. In the west it is a magnificent forest rising in places in woody knolls and solitary peaks. The surface is broken by streams on whose banks are an occasional palm or spice garden, or a small clearing for rice or sugarcane. To the east the great forest dwindles into stunted teak and scrub, till even the brushwood disappears in the open plains of the Dhárwár frontier. Villages take the place of scattered farmhouses, and the double village hedge and central tower of refuge show that in former times the border tract came within the sweep of the mounted marauders of the Deccan plains.

Hills.

The hills, with which almost the whole district is covered, may be arranged into three groups, the bare flat-topped blocks of laterite from 200 to 300 feet high which roughen the coast belt; the westerly spurs from the central hills which from 1000 to 2000 feet high stretch rugged and woody to the coast; and the main range and eastern spurs of the central hills. Unlike the Konkan Sahyádris, the west face of the Kánara Sahyádris does not rise in a single scarp, but is approached by numerous spurs and lower ridges. It is not much lower, as it averages about 2000 feet and rises in places to 3000 feet, but it is no longer the even wall-like crest of trap, unbroken by a river-channel. In Kánara granite takes the place of trap, and through the rugged granite cliffs large inland rivers force their way to the sea.

Locally the Kánara hills are considered a break between two main ranges, the Sahyádris to the north which end at the Kálinadi behind Kárwár, and the Malabár hills or Malaya Parvat which stretch south from the Shirávati or Honávar river. Of eleven peaks in the Kánara Sahyádris, which vary in height from 1500 to 3000 feet, Gudehalli and Shirvegudda are in Kárwár; Bhedasgáve and Menshigudda in Sirsi; Hukáli, Rákshas, and Mávingundi in Siddápur; and Motigudda, Kaltigudda, Darshani-gudda, and Nishánigudda are one each in Ankola, Honávar, Supa, and Yellápur. The highest of these hills, Darshanigudda in Supa, about 3000 feet above the sea, rises near the meeting of the boundaries of Goa, Belgaum, and Kánara. Gudehalli in Kárwár, 1800 feet above the sea, and Kaltigudda in Honávar, about 2500 feet high, are health resorts; and Nisháni, a small peak in Yellápur, 400 feet above the plain, and Bhedasgáve in Sirsi, about 2500 feet above the sea, are Trigonometrical Survey stations. The following statement gives the heights and geographical positions of the eleven highest hills:

*Kánara Hills.*¹

SUB-DIVISION.	NAME.	HEIGHT.	POSITION.	
			Latitude.	Longitude.
		Feet.	° ' "	° ' "
Supa ...	Darshanigudda ...	3000	15 81	74 19
Yellápur ...	Nishánigudda ...	1500	15 2	75 5
Kárwár ...	Shirvegudda ...	1500.	15 53	74 33
	Gudehalli ...	1800	14 46	74 12
Ankola ...	Motigudda ...	3000	14 37	74 32
Sirei ...	Bhedasgáve ...	2500	14 47	74 58
	Menshigudda ...	2000	14 45	74 43
	Hukali ...	1500	14 15	74 50
Siddápur ...	Rákshas ...	1600	14 11	74 52
	Mávingundi ...	1600	14 10	75 52
Honávar ...	Kaltigudda ...	2500	14 22	74 35

Chapter I.
Description.
Hills.

The larger Kánara rivers, unlike the rivers of the Konkan, drain a large area of the uplands east of the Sahyádrí scarp. There are four leading rivers, the Kálinadi in the north, the Bedti or Gangávali about twenty miles south, the Donihalla or Tadri rising far to the south but falling into the sea only about six miles south of the Gangávali, and the Bálanadi or Gersappa river about fifteen miles south of the Tadri. When it reaches the foot of the hills and becomes a tidal creek, each of these rivers takes a second name from the chief town on its banks. Thus the Kálinadi becomes the Sadáshivgad river, the Bedti the Gangávali river, the Donihalla the Tadri river, and the Bálanadi, Shirávati, or Gersappa river. In the hills the channels of all the rivers are broad and rocky, showing the force of their monsoon torrents. At the foot of the hills they are broad back-waters, the mouths stopped by bars of sand, which during heavy rains block the passage of the flood waters till they overflow the lowlands along their banks.

Rivers. •

The Kálinadi or Sadáshivgad river rises on the Goa frontier in the extreme north of the district. After a winding south-easterly course of about forty miles it takes a sharp turn to the south-west, and, keeping to the south-west, after a course of about ninety miles falls into the sea two miles north of Kárwár. Two branches of the main stream rise on the Goa frontier, the Pándri or Ujli in the extreme north and the Káli about twenty miles further south. The streams join at Supa about twenty miles south-east of the source of the Pándri which is the larger stream. The streams receive the names from their appearance before they join at Supa. The banks of the Kálinadi above the point of junction are comparatively high, and those of the Pándri are sloping. Hence looking from a hillock which overhangs the river at the junction, the Kálinadi has a darker and the Pándri a brighter appearance. From Supa, under the name of the Káli, it flows twenty miles south-east, till, about eight miles north of Yellápur, it is joined on the left bank by the Tattihalla, a stream with a winding southerly course of about thirty-five miles from the north of Haliyál. Below its meeting with the Tattihalla the Káli flows about ten miles west, where it is joined

The Kálinadi.

¹ Most of these heights are only approximately correct. Details of these hills are given under Places of Interest.

Chapter I.
Description.
Rivers.

*The Bedti or
• Gangāvali.*

on the right by the Nuji which has had a rough south-easterly course of about twenty-five miles from the Goa frontier. From its junction with the Tattihalla till it meets the tide at Kadra, the bed of the river is very rugged. During the twenty miles below Kadra the river is navigable by boats of a ton and a half to five tons (6-20 *khandis*). The mouth of the river has a depth of fifteen feet at low water and twenty-one feet at high water.

The Bedti or Gangāvali rises in Dhārwar about twenty-five miles north of the north boundary of Mundgod, and, after a fairly straight south-westerly course of about eighty-five miles, falls into the sea about twenty miles south of the Kālinadi. The main stream rises a few miles south of the town of Dhārwar, and, after a southerly course of about fifteen miles, is joined on the left by the Kāl from near Hubli. The united stream passes about five miles south-west to the Kānara border, and during the sixty miles across the district receives no feeder of any size. At the village of Māgod, about twenty-five miles from where it enters the district, among scenery of great beauty, the Bedti dashes over the western face of the Sahyādris in a cataract known as the Māgod falls.¹ About ten miles further, near the village of Gundbāle, it meets the tide, and for the remaining fifteen miles of its course is navigable to boats of one to five tons (4-20 *khandis*).

*The Aghanāshani
or Tadri.*

The Donihalla or Tadri river rises near Sirsi, and after a winding westerly course of about forty-five miles, falls into the sea about six miles south of the Gangāvali river. Throughout its course it receives no feeder of any size. It has two sources, the Bākurhole rising in a pond at Manjunji, about fifteen miles west of Sirsi, and the Donihalla whose source is close to Sirsi. The streams meet near Mutthalli about ten miles south of Sirsi, and, under the name of Donihalla, flow about fifteen miles, with a winding westerly course to the western face of the Sahyādris down which, about eight miles north of Bilgi, it leaps in what is known as the Lushington falls, which are little inferior in beauty to the more famous Gersappa falls. At Uppinpatna, about ten miles west of the fall, the Donihalla meets the tide. For the remaining fifteen miles during which it is navigable to craft of four to nine tons (16-36 *khandis*), the river is known either as the Tadri or as the Aghanāshani river from two towns on the right and left banks of its mouth. From Uppinpatna it winds south-west and then north-west together about eight miles to Mirjān, an old seat of trade. From Mirjān it forms a lagoon or back-water which runs parallel to the coast about eight miles long and one to three miles broad, cut off from the sea by a belt of land with a nearly uniform breadth of about a mile. The outlet to the sea is about three miles from the north end of the lagoon. It is between two hills one 300 and the other 400 feet high, and has a depth of about seventeen feet at high tide. Inside there is as much as twenty-five feet of water so near the shore that vessels of twenty tons can be laden from the bank. Unfortunately

¹ These falls are described under Māgod, Places of Interest.

the entrance is narrow, nearly blocked by a rocky reef, and not to be attempted during the south-west monsoon.

The Baráganga, Shirávati, or Gersappa river, after a northerly course of about forty miles from Bednor in Maisur, forms the south-east boundary of Kánara for about eight miles, and then passes about twenty miles west, or about seventy miles in all, to the sea at Honávar. Soon after touching the border of Kánara, the Baráganga, in four different bodies of water, among magnificent forests and wild granite cliffs, dashes over the west face of the Sahyádris, a height of 825 feet, into a pool 350 feet deep. About eighteen miles west it reaches the ruined capital of Gersappa. During the remaining seventeen miles to the coast the river flows between richly wooded banks fringed with mangrove bushes, a broad tidal estuary, brackish in the dry weather, but during the rains sweet even close to its mouth. About five miles from its mouth it widens to a lagoon about two miles broad containing a few islands, the largest being Mavinkurve which is more than three miles long with a large area of rice land and studded with cocoa palm and mango trees. For about a mile from the mouth the river has a breadth of about three-quarters of a mile. At the mouth it again narrows into a channel about 300 yards broad, outside of which lies a formidable bar.

Besides the four main rivers many minor streams water the district. As a rule west of longitude 75° the drainage is westward into the Arabian Sea, and east of longitude 75° the drainage is eastward and feeds the Varda, an affluent of the Tungbhadra. The Varda rises in the north-west of Maisur, and, flowing north and east, passes through a corner of North Kánara near the town of Banvási, which stands on its northern or left bank, and finally enters the Tungbhadra at Gulajnáth in the Karajgi sub-division of Dhárwár.

The chief minor coast streams are, beginning from the north, the Belikeri, the Ankola, the Kumta, the Badgani, the Venktápur, and the Bhatkal rivers. These are all tidal, from a hundred yards to two miles broad, and at high water are navigable to small craft of one-half to two tons (2-8 *khandis*) from two to ten miles inland.

The Belikeri river has deep water at all tides inside of the bar and is navigable for three miles for canoes. Bamboos, timber, and other local produce are shipped.

The Ankola river above the limit of navigation is known as the Sankadhole, and during the last two miles of its course is called after the chief town on its banks. Ankola was formerly a place of importance. There is now little trade and few boats visit its shallow estuary.

The small stream on which Kumta stands, though navigable only at high tide, carries the whole trade of the port to vessels that anchor in the sea about half a mile off its mouth. The bar is dangerous and can be crossed only by flat-bottomed boats and light-craft.

Chapter I.
Description.
Rivers.
The Shirávati.

The Varda.

Belikeri River.

Ankola River.

Kumta River.

Chapter I.**Description.****Rivers.***Badgani River.*

The Badgani river rises to the north of the spur of the Sahyádris of which the peak of Kattigudda is the highest point. It receives the drainage of the extensive forest villages of Hodki, Sirur, and Sántgal, and flows west and south, falling into the estuary of the Shirávati. It is navigable for light craft twelve to fifteen miles from the mouth. About twelve miles from its mouth this river changes from west to south at a distance of a quarter of a mile from the sea, and keeps this interval for the rest of its course. In the rainy season it is liable to heavy floods which often swamp the low rice lands lying between the river and the laterite plateau to the east which rises abruptly 200 feet from the sandy plain. The owners of the lands liable to be flooded are anxious that the sand bank should be cut through and a new mouth made. But the work is one of some magnitude and of doubtful success.

Venktápur River.

The Venktápur river, rising in the Sahyádris near the village of Kauli about eighteen miles north-east of Bhatkal, falls into the sea after a course of about twelve miles. The river is navigable for the last three miles of its course where it forms an estuary affording anchorage for small native craft of five to ten tons.

Bhatkal River.

The Bhatkal river rises in the Sahyádris, and, with a westerly course of twelve miles, passes the town of Bhatkal, about three miles from its mouth, from which it is navigable at high water by boats of one-half to two tons (2-8 *khandis*). There is an awkward sand bar at the mouth, but native craft drawing eight feet of water can enter.

Floods.

In the monsoon after a heavy rainfall the rivers overflow and flood the low lands along their banks. These floods do not last long. Within a few hours after the rain is over the rivers retire to their usual channels. Crops are sometimes destroyed, but life and property seldom suffer.

Cyclones.

Cyclones are rare. Two have lately occurred, one in January 1870, the other on the 21st and 22nd of May 1879. For a few days before the 21st of May 1879 the weather was unsettled. On the afternoon of the 21st, a violent wind set in from the north, then turned to the south-west, and again went back to the north. With the wind came vivid lightning, thunder, and heavy rain. All the vessels, of which there were about twenty loading or laden with cotton for Bombay, remained safe at anchor under Kárwár Head, riding at their usual moorings. Next day (the 22nd) there was little wind and towards evening it was calm. Rain fell heavily and the barometer went steadily down till, at ten at night, it was 29.500. A little before ten, a strong wind sprang up from the south-west rising to a fierce gale which lasted through the night. The speed of the wind in some of the gusts was estimated at sixty to seventy miles. In the pitch dark, lightning flashes showed that some of the outer vessels were in trouble. One of them broke from her moorings, and running foul of the pier was dashed to pieces. Another cotton craft moored far out, dragged her anchors, and went on shore opposite the Telegraph office. A Goa boat laden with onions also ran aground. The other craft, with hardly an exception,

dragged their anchors, being moored with too short cables. The morning showed an appalling sea outside of the harbour, the large cotton boat, anchored far out in the bay, broke loose, and grounding near the jail, was broken to pieces in half an hour. But for the shelter given by Baitkul, not one of the vessels could have escaped. By ten in the morning of the 23rd the barometer had risen to 29.720. The wind veered to the west and its force gradually lessened. But it still blew so hard that the sea wall near the port office was breached in many places. Heavy spray washed across the road and the waves dashed eight or nine feet higher than in the heaviest bursts of the south-west monsoon.

Neither in Upland nor in Lowland Kánara are there large lakes or reservoirs. In the upland tract are many small ponds whose water is used for irrigation. But there are no ponds of any size and the beds of most are so thick with silt that they run dry during the hot weather. In the uplands there are also many springs of which the best known is the Nágjhari or Cobra spring near Haliyál. In the forests the water is so laden with vegetable matter that even running streams are dangerous to drink. Below the Sahyádris drinking water is generally supplied by wells and rivers. There are a few reservoirs and some stream beds used for watering crops. Along the sea coast, in the sandy tracts near river mouths, fresh water fit for drinking is found during the rains within a few inches of the surface, and in the dry season from five to ten feet below. When very low, towards the close of the hot weather, the water in many places becomes brackish. Hill springs are numerous; one named Rámtirtha or Ráma's pool, which issues from the laterite rock near Honávar, has an unfailing flow of the finest water. Of late years, over the whole of the district, many wells have been dug, and the number is being steadily increased.

Its waterfalls are one of the chief features of Kánara scenery.¹ Rivers, which take their rise on the eastern slopes of the Sahyádris and are strengthened in their westward course by the drainage of an extensive tableland, rush from great heights, and form most picturesque waterfalls among the highest in the world. The chief of these are the Gersappa or Kodkani falls, with a drop of 890 feet, formed by the Shirávati or Honávar river, about thirty-six miles south-east of Honávar. Next to these falls are the Lushington falls of the Tadri river, called after Mr. Lushington who discovered them about the year 1843. These falls lie about eighteen miles south-west of Sirsi and are very interesting. A third fall occurs on the Gangávali river near Mágod village, about twelve miles south-west of Yellápur, and a fourth in the Kálinadi near Lálguli, about ten miles north of Yellápur.

Kánara lies outside the great flows of trap which overspread almost the whole of Central and Western India and the Konkan. The rocks of this part of the Southern Marátha Country have been classed by Dr. Christie under five heads, granite, transition rocks,

Chapter I.
Description.
Cyclones.

Water Supply.

Waterfalls.

Geology.

¹ Fuller descriptions of these falls are given in Places of Interest.